

SCENIC QUALITY

Background

The visual landscape of the Tahoe Region contains the unusual combination of rugged mountain peaks, the vast, flat lake surface, and thickly forested slopes. This combination of landscape elements makes it one of the truly unique places in the world. The 1980 Tahoe Regional Planning Compact states that the “social and economic health of the region depends on maintaining the significant scenic . . . values provided by the Lake Tahoe Basin” and mandates TRPA to preserve scenic beauty by insuring an “equilibrium between the region’s natural endowment and its manmade environment.” In 1982, TRPA adopted environmental threshold standards in nine areas, included scenic quality. At that time, each of 33 “shoreline units” was scored based on the view of the backdrop, the character of the shoreline and natural and man-made features. A moderate status quo baseline score was established as the desired measure of scenic quality that would allow shoreline development to occur but not dominate over and contrast with the natural landscape.

The Cascade to Rubicon Bay area includes Scenic Shoreline Units 5 and 6, and Scenic Roadway Unit 3. The entire area, including SR-89, is considered a scenic travel corridor. Special Policies for this area related to visual quality, identified in TRPA’s Emerald Bay Plan Area Statement, include:

- Retaining walls or other similar manmade structures along the highway should incorporate the use of materials that blend with the natural character of the area.
- All proposed uses shall be evaluated against scenic evaluation criteria to ensure maintenance of scenic quality.

Potential Impacts

Construction of a Class I paved bike path along the shoreline between Emerald Bay and Rubicon Bay would be expected to result in significant impacts to the scenic quality of the area. According to Chapter 1000 of the Caltrans Highway Design Manual, which includes standards for bike path design, Class I bike paths generally attract less skilled bicyclists, so it is important to avoid steep grades in their design. The maximum grade rate recommended for bike paths is 5%, and it is desirable that sustained grades be limited to 2% if a wide range of riders is to be accommodated. In order to maintain a relatively level trail profile, where gradients and cross-slopes do not exceed the recommended maximums, cut and fill would be required for segments of the path along the shoreline of Emerald Bay and D.L. Bliss State Parks. Additionally, Chapter 1000 discusses minimum trail clearances. A minimum lateral clearance of 2 feet of graded surface on each side of the trail is required, meaning that an 8 foot paved trail would be effectively 12 feet in width including the lateral clearances. A minimum vertical clearance of 8 feet across the clear width of the path is required, with 10 feet of vertical clearance recommended. In order to provide sufficient lateral and vertical clearances along the bike path alignment, a substantial amount of tree removal would be likely be necessary.

Summary

In forested areas upslope of the Lake, constructing a Class I paved bike path may be possible without resulting in substantial visual impacts. Such locations would include areas of relatively flat

topography, where substantial earthmoving and tree removal is not necessary in order to build the trail. Within the project study corridor, most areas of minimum visual impact would occur north of Emerald Bay State Park, where a bike path alignment could parallel the highway and would not be visible from the Lake. Along the shoreline of the Lake, particularly around Emerald Bay, constructing a Class I bike path would be expected to significantly degrade the visual quality of the area.

OTHER CONSIDERATIONS

PRIVATE PROPERTY

Extension of an off-street bikeway from Spring Creek Road into a shoreline alignment within Emerald Bay State Park would require extending through the Cascade Properties private residential neighborhood. Cascade Road could provide for a possible bikeway alignment with few environmental impacts, but because it is a private road its use would require an easement from Cascade Properties. Another, more difficult issue, would be connecting from Cascade Road to the shoreline area of Emerald Bay park, which would require extending directly through a private lot. This would require an easement from the property owner.

STATE PARKS CARRYING CAPACITY

During the Technical Advisory Committee meetings, State Parks staff indicated that increasing visitorship to Emerald Bay State Park may not be a desirable result of the bikeway. To the extent that an off-street bike path would contribute to an increase in visitors to Emerald Bay State Park, this would be considered a negative impact by State Parks.

It is not clear that a bike path into Emerald Bay would actually increase the number of visitors. It is possible that a bike path might simply change the mode of travel that some existing visitors use to get into the park, in other words encourage people to bicycle into the Park rather than drive. The extent to which the trail would be used by existing visitors would be largely dependent on the final alignment chosen. Any pathway that would require substantial elevation changes would likely limit the ability of casual recreational cyclists to ride it.

ALTERNATIVE 2: ON-STREET BIKEWAY

OVERVIEW OF ALTERNATIVE

The On-Street Bikeway alternative included consideration of all on-roadway options for the Cascade to Rubicon Bay corridor. For segments along SR-89, two variations were considered: 1) Widening/stripping the roadway to provide Class II bike lanes; or 2) Widening/stripping the roadway to provide wide shoulders without bike lane designation. In areas where residential roads, park service roads, or other existing roadways are present adjacent to the highway alignment, this Alternative considered the use of such roadways as Class III bike routes.

ENGINEERING CONSIDERATIONS

The possibility of developing various on-street bikeway segments was assessed with a detailed field review of SR-89 and other roadways within the project corridor. Measurements of typical SR-89 cross-sections were taken along the entire corridor, and are shown in **Figures 3-5, 3-6, 3-7, 3-8, 3-9, 3-10, 3-11, and 3-12**. It should be noted that these are illustrative graphical cross sections, and not detailed engineering drawings.

Caltrans is currently conducting a Project Study Report for SR-89 between the Placer County line and the Alpine County line to conduct water quality improvements. These improvements will include the provision of 4-foot shoulders along SR-89 where possible. This project will occur independently of any specific bikeway projects.

BIKE LANES VERSUS SHOULDERS

Class II bikeways (bike lanes) for preferential use by bicycles are established within the paved area of highways. Bike lane stripes are intended to promote an orderly flow of traffic, by establishing specific lines of demarcation between areas reserved for bicycles and lanes to be occupied by motor vehicles. This effect is supported by bike lane signs and pavement markings. Bike lane stripes can increase bicyclists' confidence that motorists will not stray into their path of travel if they remain within the bike lane. Likewise, with more certainty as to where bicyclists will be, passing motorists are less apt to swerve toward opposing traffic in making certain they will not hit bicyclists.

However, while bicycle lanes provide a dedicated space for cyclists, they could have some disadvantages with respect to the Cascade to Rubicon Bay corridor: During the Technical Advisory Committee meetings and public meetings, various individuals commented that formal Class II bike lanes would not be an appropriate treatment for the project corridor, and that wide striped shoulders would be preferable. The following issues were raised:

Design Requirements. Designation as Class II triggers specific design and signage requirements as outlined in Chapter 1000 of the Caltrans Highway Design Manual. These include minimum bike lane widths (4 feet where no gutter exists), minimum widths of roadway lanes next to bike lanes (12 feet), and requirements for striping (150 mm white outside stripe), stencils, and signage (the R81 bike lane sign shall be placed at the beginning of all bike lanes, at all major changes in direction, and at maximum 1 kilometer intervals). Any additional signage on the roadway could affect the scenic quality of the roadway. Striping and stenciling could have maintenance implications, given the snowplowing activities that occur on SR-89 throughout the winter. Extensive striping and stenciling of Class II bike lanes would likely require annual repainting each spring (although relatively frequent repainting would likely be required of wide striped shoulders as well).

Motorist expectations. The California Vehicle Code Section 21208 states: (a) Whenever a bicycle lane has been established on a roadway pursuant to Section 21207, any person operating a bicycle upon the roadway at a speed less than the normal speed of traffic moving in the same direction at that time shall ride within the bicycle lane, except that the person may move out of the lane under any of the following situations:

1. When overtaking and passing another bicycle, vehicle, or pedestrian within the lane or about to enter the lane if the overtaking and passing cannot be done safely within the lane.
2. When preparing for a left turn at an intersection or into a private road or driveway.
3. When reasonably necessary to leave the bicycle lane to avoid debris or other hazardous conditions.
4. When approaching a place where a right turn is authorized.

(b) No person operating a bicycle shall leave a bicycle lane until the movement can be made with reasonable safety and then only after giving an appropriate signal in the manner provided in Chapter 6 (commencing with Section 22100) in the event that any vehicle may be affected by the movement.

Although the Vehicle Code permits a cyclist to leave a bike lane under such conditions, many motorists expect cyclists to remain in the lanes at all times. Along SR-89 within the Cascade to Rubicon Bay corridor, rockfall and other debris is common along the edge of the highway. If bike lanes were installed, it would be expected that they would have to frequently leave the lane to avoid debris, particularly on the upslope (western) side of the roadway.

Consistency of Facility. Due to the fact that there are severely constrained areas of the SR-89 corridor, developing 4 foot bike lanes for the entire length of the corridor will not be possible without major re-engineering of portions of the roadway. If bike lanes were installed under current conditions, there would be areas in which the lanes would abruptly end. A frequent complaint of cyclists are inconsistent bike facilities.

Topography. Bike lanes are not advisable on long, steep downgrades, where bicycle speeds greater than 50 km/h are expected. As grades increase, downhill bicycle speeds will increase, which increases the problem of riding near the edge of the roadway. In such situations, bicycle speeds can approach those of motor vehicles, and experienced bicyclists will generally move into the motor vehicle lanes to increase sight distance and maneuverability. If bike lanes are to be striped, additional width should be provided to accommodate higher bicycle speeds.

Maintenance. Bike lanes require stenciling and signage that would require additional maintenance. Particularly given the snowplowing that occurs on the corridor during winter months, the bike lane stencil paint would need to be re-applied on an annual basis. (As noted above, relatively frequent repainting would likely be required of wide striped shoulders as well, but probably less frequently than stenciled bike lanes).

Urban Feel. In addition to the above issues, some individuals expressed that formal bike lanes were more appropriate as an urban treatment, and did not belong in the scenic Emerald Bay area.

Given the potential negative issues related to bike lanes, it was concluded that wide shoulders would be the desired on-road treatment for SR-89 within the Cascade to Rubicon Bay corridor.

Development in SEZ and Wetland Areas

Segments of the On-Street Bikeway shoulder widening could involve development within SEZ or wetland areas. As discussed earlier in this chapter, specific findings must be made before the Regional Board can grant exemptions to prohibitions against new development or permanent disturbance in SEZs or grant exceptions to the 100-year floodplain discharge prohibitions in cases where the floodplain is not also a SEZ. Please see the discussion under the Off-Street Bikeway alternative for more details on findings that would be required for any On-Street Bikeway development within SEZ or wetland areas.

ALTERNATIVE 3: TRANSIT

OVERVIEW OF ALTERNATIVE

The analysis of Alternative 3, Transit, considered what type of enhancements to the existing local transit system could be implemented in order to accommodate bicyclists through the Cascade to Rubicon Bay corridor. For those cyclists not comfortable riding on SR-89 around Emerald Bay, a bicycle transit service would provide a means of connecting the gap in the bike path system between the West Shore Path and the Pope-Baldwin Path. Two potential transit options are examined: 1) modifying existing transit service to better accommodate bicycles; or 2) providing a dedicated transit service for bicyclists only. Key transit stop locations are shown on the Conceptual Alternatives maps.

OPERATIONAL CONSIDERATIONS

EXISTING SERVICE

The following transit services currently operate along the study corridor.

Tahoe Area Regional Transit and Tahoe Trolley

The Tahoe Area Regional Transit (TART) system is currently operated by Placer County and operates from 6:10 A.M. to 6:30 P.M., seven days a week. The service operates on State Routes 28 and 89 along the northern and western shores of Lake Tahoe, from Incline Village, Nevada on the northeast to Tahoma in El Dorado County on the southwest, and to Truckee via State Route 89. Service is generally provided on hourly headways.

During the summer only, TART operates the Tahoe Trolley service along the northern and western shores of Lake Tahoe along three coordinated routes: Crystal Bay-Tahoe City, Tahoe City-Squaw Valley and Tahoe City-Emerald Bay. Passengers can transfer between north/south segments and east/west segments. Trolleys operate from 10:30 A.M. until 10:30 P.M. seven days per week, with hourly headways. The Emerald Bay route turns around at Inspiration Point, with stops at major park destinations along the highway.

Nifty Fifty Trolley and Emerald Bay Tram

The Nifty Fifty Trolley was established in 1994 and currently operates two routes on the South Shore. Route A runs from Stateline to the South “Y” to Camp Richardson's Resort. Route B runs from Zephyr Cove to Stateline to Heavenly. In conjunction, during the summer season the Emerald Bay Tram runs every half-hour between Camp Richardson and Vikingsholm/Emerald Bay. These services operate June through September, with more frequent headways during the peak months of July and August.

ENHANCING BICYCLE ACCESS

As noted above, the provision of bicycle transit service along the project corridor could involve either modifying existing bus service to accommodate bicyclists, or the provision of a new, dedicated bicycle shuttle along the corridor.

Use of Existing Service

Bicycle racks are currently provided on all TART and Tahoe Trolley buses during daylight savings months (April through October). Most buses are equipped with racks that accommodate two bicycles, with some buses equipped with racks that hold four bikes. During peak summer hours, bike racks are occasionally at capacity and cyclists must wait until the next bus (1 hour headways). TART buses travel as far south as Inspiration Point during summer months.

Bicycle racks are currently not installed on any Nifty Fifty or Emerald Bay trolleys.

In order to provide a complete bicycle transit system along the corridor using existing bus service, bicycle access would need to be provided on the South Shore bus system. Standard front-loading bike racks could be installed on trolley buses, although SS/TMA staff have indicated that this may conflict with the desired aesthetic of the trolley. Approximately cost of a typical front-loading two-bike rack, including installation, is approximately \$1,000. If bike racks are determined not to be possible, allowing bicyclists to bring their bikes on board buses is another option. However, during peak summer conditions buses often run at capacity and there would be no way of accommodating bicycles inside the trolley.

Dedicated Bike Transit

As an alternate to the use of existing service, a separate bicycle-only shuttle service could be established along the corridor. Caltrans currently operates a bicycle shuttle service along the San Francisco-Oakland Bay Bridge. The shuttle consists of a passenger van towing a trailer equipped with bicycle racks. Each shuttle can accommodate a maximum of 14 riders and their bikes. These shuttles only operate during weekday commute times (when bicycle access is prohibited on BART trains). Fares across the bridges are \$1.00 each way. Such a system could be implemented along the SR-89 corridor between Camp Richardson and Meeks Bay.

As part of a proposed parking shuttle program on the East Shore, LSC Transportation Consultants worked out with the local transit service company that a dedicated bike shuttle would cost on the order of \$35.00 per hour to operate. Assuming 12 hours of operation per day over a 100 day

summer season, the operating cost would be around \$42,000 per year. Including the cost of the van, trailer, and some stop improvements, a reasonable capital cost would be \$50,000.

The service would have to operate between two locations that have adequate available parking for some cyclists to drive to one end, load their bike on the shuttle, and then bike at some other stop. That probably infers a route from Homewood Ski Area on the north to the South Y on the south. With one van, this service would only provide a frequency of one departure every 2 hours.

In terms of recreational cyclist demand for a direct transit trip between the Pope-Baldwin Path and Meeks Bay in order to connect the paths, such demand would be expected to be relatively low. Both the North Shore and the South Shore areas provide many opportunities for an attractive recreational ride, and many cyclists may not be interested in taking an hour-long shuttle ride in order to make a recreational trip on the opposite end of the lake. However, if such a trip were combined with one or more stops at the various destinations within Emerald Bay and D.L. Bliss State Park (Inspiration Point, Eagle Falls, Vikingsholm, Lester Beach), demand would likely be higher.

NEW STOPS

As part of increasing bicycle access along the corridor, for both existing transit service or for a dedicated bike shuttle, new transit stops may be desired. Many logical stopping points are already included in transit service along the corridor, e.g. Camp Richardson, Inspiration Point, Vikingsholm, D.L. Bliss State Park. However, additional stops may be necessary to cater specifically to bicyclists. These might include: Spring Creek Road at the terminus of the Pope-Baldwin Bike Path, Eagle Point Campground, Lester Beach, and Paradise Flat. In particular, locations that may allow cyclists to use transit to avoid a steep hill or other major change in topography may be desired (e.g., a stop at Paradise Flat would permit cyclists who ride south to this point to get to D.L. Bliss State Park without climbing the major grade).

COORDINATION OF SCHEDULE

If existing transit service were equipped with bicycle racks, one important aspect of the program would involve coordination of schedules between the South Shore and West Shore systems. Currently these systems operate on different headways; and a trip between the end of the Pope-Baldwin Path and Meeks Bay would require travel on both systems. Ensuring that a through-cyclist could transfer with minimal waiting time would increase the functionality of this alternative. In addition, shortening headways would likely make the system more attractive and increase demand by other (non-cyclist) users.

NEW BICYCLE AMENITIES

Providing amenities such as bicycle racks at key destinations would be a key component of a successful bike transit program. For example, bicycles are not allowed on unpaved roads within Emerald Bay State Park, and bicyclists wishing to visit Vikingsholm would need a place to lock their bike in the parking lot area. It is important that bike racks be provided at this location, as well as at other transit stops where bicyclists may want to leave their bikes to explore a visitor destination.

LIMITING PARKING IN EMERALD BAY

One variable in the success of a transit system through Emerald Bay is the availability of vehicle parking in the area. Regardless of an improvement in transit headways or additional stops in the area, many visitors will continue to choose to drive to Emerald Bay if they believe there will be available parking in proximity to their destination. During the Technical Advisory Committee meetings, there were suggestions of completely overhauling the current Emerald Bay parking scenario, to eliminate short-term public parking and require the use of transit to access day-use areas such as Vikingsholm. One model recreational transit system noted was the US Forest Service's shuttle to Devil's Postpile National Monument in Mammoth Lakes, California. The Devil's Postpile Shuttle is mandatory for all visitors between June and September, (with a few exceptions, including persons with disability placards). One key difference between the Devil's Postpile area and the Emerald Bay area is that Devil's Postpile is located at the end of a narrow, single-lane road that does not experience any through-traffic.

It is beyond the scope of this Bikeway Study to evaluate the impacts of eliminating parking within the Emerald Bay area. This project would require large parking/staging areas on both the north and south ends of Emerald Bay where visitors could leave their vehicles and transfer to a shuttle. Obviously, through-traffic would still be permitted on SR-89 for travelers heading between destinations north and south of Emerald Bay. Given this, there would be an incentive for short-term visitors to circumvent the shuttle requirement entirely. It is likely that this arrangement would increase the incidence of drive-through visitation, with people just pulling off the road for a quick view or photo opportunity. A concerted effort would need to be made to discourage short-term roadside parking, so that all through-traffic were kept moving through the area. This could involve the provision of a short-term parking/viewing area, with a strictly enforced time limit on parking, for visitors who only wanted a brief viewing opportunity and did not want to visit the park for an extended time.

Prior to any substantial limitation of parking within Emerald Bay, a detailed parking and traffic study would need to be conducted.

ALTERNATIVE 4: WATER FERRY

OVERVIEW OF ALTERNATIVE

Another alternative to aid bicycle travel through the corridor could be to operate a waterborne ferry shuttle service that allows cyclists to avoid the most physically challenging segments of the corridor. Water ferry service within the Emerald Bay area has been referenced in historical TRPA documentation, although no detailed plans for such service have been prepared to date.

Optimally, a bicycle ferry service within the study area would provide a waterborne link as an alternative to bicycle travel from the northern portion of D.L. Bliss State Park to Cascade Creek. However, in reality the potential service would be substantially constrained by the availability of adequate shore facilities.

Currently, there are examples of bicycle-specific water ferry operations in the United States. In Vermont, the Winooski Bike Ferry links two sections of a rail-trail north of Burlington. A local non-profit operates the service, running a standard pontoon boat for the ferry. The Winooski ferry operations are funded by boarding fees, donations, and a grant from the Vermont Department of Transportation. In Marina Del Rey California, a pilot program was undertaken in late Summer 2002 to operate a ferry across the mouth of the marina to link two sections of the coastal bike path. The Marina del Rey project was completely funded by a grant, and did not charge for boardings. Both ferry operations reported successful ridership. One key difference between these two examples and the study area is the length of trip, as the Cascade to Rubicon Bay corridor is a much longer distance.

The remainder of this section discusses major operational consideration for a water ferry alternative for the SR-89 Bikeway.

OPERATIONAL CONSIDERATIONS

POTENTIAL DOCKING LOCATIONS

A comprehensive review of potential ferry service shore facility locations was recently conducted as part of the Hornblower Charter Service Traffic and Parking Study (LSC, 2000). A summary of potential facilities along the West Shore between Tahoe Keys Marina and Homewood is presented in **Table 3-1, Summary of Allowable West Shore Potential Ferry Facility Sites**. In addition to these facilities, the US Forest Service constructed a pier at the Valhalla Historic Site in summer 2002 that could accommodate a shallow-draft passenger vessel.

Use of the Sugar Pine Point State Park pier near Ehrman Mansion for any service with landside passenger access (auto or otherwise) is currently against State Park policy. Given the

The Meeks Bay Marina is not currently noted as an allowable ferry site, although based on a conversations with the marina operator it does appear that the marina would have the potential to accommodate a small watercraft. The marina is constrained by the depth of the inlet channel, as well as the small size of the marina which makes it difficult to turn around larger vessels. New docking/pier facilities would be required, and these facilities would need to be constructed in a way that does not interfere with the existing boat launch. The development of any ferry landing facilities at Meeks Bay would require environmental review, permitting from TRPA, and coordination with the Washoe Tribe which operates the Marina. However, based on its key location at the north end of the Bikeway Study corridor, as well as the availability of parking and services at the resort, Meeks Bay is considered a desirable northern docking location for the a Waterborne Ferry alternative.

On the south end, Camp Richardson would be a desirable docking location, due to its proximity to the Pope-Baldwin bike path, availability of some nearby parking, and services at the resort area. It bears noting that the operator of Camp Richardson currently does not allow the major charter boat operator on Lake Tahoe to use the Camp Richardson pier; if this condition were to remain in effect for a bicycle ferry service, the next potential location would be at Valhalla, nearby. As with use of the Meeks Bay Marina, use of the Camp Richardson pier for the Ferry alternative would require

environmental analysis, TRPA permitting, and coordination with the operator of the Camp Richardson Resort.

Assuming that environmental and permitting issues can be resolved, a one-way ferry trip between Meeks Bay and Camp Richardson would cover a distance of roughly 10 miles. Due to the docking constraints at both Camp Richardson and Meeks Bay, a full-size ferry boat is not anticipated to be able to run between these locations. Instead, a smaller vessel such as a pontoon boat or modified speedboat would be the most likely type of boat used, resulting in slower operating speeds than a large high-speed ferry. Assuming an average operating speed of 15 mph, this trip would have a one-way running time of approximately 40 minutes. Including time for boarding/deboarding, service departing from each pier once every two hours could be provided.

Table 3-1
Summary of Allowable West Shore Potential Ferry Facility Sites

Facility	Limitations on Summer Use to Ensure Adequate Parking and Traffic Conditions	Shuttle Bus Parking
Ski Run Marina	Auto access only if shuttle service provided to Upper Ski Run Blvd. parking area and ferry	Upper Ski Run Boulevard Parking available
Timbercove	Charters with auto passenger access only if beginning and ending between 9 AM and 5 PM. During peak seasons, exiting traffic generated by auto passenger access limited to right-turn only onto US 50.	On-site parking available 9 AM to 5 PM in summer and winter, all hours in off-seasons.
Tahoe Keys	No auto passenger access	Off-site parking required in summer.
Camp Richardson	No passenger access via car. Traffic control officers must be provided at SR-89/Jamison Beach Road for all charters ending between 11 AM and 5 PM.	On-site parking available, but not near marina.
Vikingsholm	Destination only – No landside access	--
Sugar Pine Point State Park	Destination only – No landside access	--
Chambers Landing	No auto passenger access	Off-site parking available at Homewood
Homewood	No limitations	Parking available, except on peak ski days

Source: LSC Transportation Consultants

At both ends of this potential ferry trip, there is no available parking for use by ferry passengers. Ferry passengers would therefore need to be limited to persons arriving without a car, which would be a very difficult restriction to enforce. One option would be to only allow boarding by persons bringing a bicycle. However, this would not preclude persons from parking in nearby neighborhoods or along highways and simply bringing their bike to the ferry dock. In addition, this condition would preclude other non-motorized travelers (such as hikers) from using the service. Restricting ferry ridership to those not parking nearby is probably not a possible alternative.

Reviewing Table 3-1, the shortest ferry trip that could potentially be provided between existing pier locations with parking available for ferry passengers would be between Timbercove Marina on the south and Homewood on the north. At Timbercove Marina, parking is only available for ferry passengers during the period of the day when relatively few parking spaces are required by the Timbercove Lodge (9 AM to 5 PM). Because existing docking facilities at Timbercove and Homewood allow larger watercraft, this service could be provided by a full-size ferry. This route would be approximately 14 miles in length, and would provide departures from each pier roughly every one hour and 20 minutes.

A reasonable schedule for this service is presented in **Table 3-2, Potential Bicycle Ferry Schedule**. In addition to meeting the limitations on parking at Timbercove, this schedule would also allow the vessel to be operated with one crew shift. It also begins and ends at the South Shore, which minimizes the cost of the service as the boat would probably be serviced and stored overnight on the South Shore.

Table 3-2
Potential Bicycle Ferry Schedule

Depart Timbercove Marina	Arrive Homewood Marina	Depart Homewood Marina	Arrive Timbercove Marina
9:00 AM	9:35 AM	9:40 AM	10:15 AM
10:20 AM	10:55 AM	11:00 AM	11:35 AM
11:40 AM	12:15 PM	12:20 PM	12:55 PM
1:00 PM	1:35 PM	1:40 PM	2:15 PM
2:20 PM	2:55 PM	3:00 PM	3:35 PM
3:40 PM	4:15 PM	4:20 PM	4:55 PM

Source: LSC Transportation Consultants

In light of the extent of the summer tourist season, a reasonable season for this service would be operation from the last weekend in June through the Labor Day weekend, or approximately 70 days per year (depending upon when Labor Day falls on the calendar). For purposes of this study, it is assumed that a passenger boat with a capacity of approximately 30 persons (with bikes) is adequate.

CAPITAL COST

Depending upon the specific characteristics of the vessel (speed, air pollution abatement equipment, furnishings, etc.), a reasonable cost for 30-passenger vehicle is approximately \$300,000.

OPERATING COST

A major commercial tour boat operator on Lake Tahoe indicated that an hourly cost on the order of \$60 per hour is a reasonable estimate. This costs reflects operation of a 30-passenger, shallow draft vehicle, with a crew of two. In addition, docking fees are typically charged use of private facilities that range from roughly \$500 per month and up. Roughly \$5,000 per year would also need to be budgeted for administration and marketing. Finally, insurance costs are on the order of \$10,000 per year.

Over the course of the operating season, the schedule above would require approximately 630 hours of operation, incurring an operating cost of roughly \$38,000 per year. Including \$10,000 for insurance, \$5,000 for administration/marketing and \$3,000 for docking fees (\$500 per month times two docks times 3 months), this program would require an operating budget of roughly \$56,000 per year.

RIDERSHIP

The following can be considered in assessing potential ridership on this service:

- If used to full capacity, the service could accommodate a total of 180 passenger round-trips per day, or 360 one-way passenger-trips
- It is known that a “water taxi” service between Camp Richardson and Ski Run Marina operated by Hornblower Cruises several years ago generated only low ridership.
- Ridership would be influenced greatly by both public awareness and fare levels.
- Considering that this service is intended as a public amenity (rather than as a money-making enterprise) a one-way fare of \$3.00 is assumed. Even at this relatively low fare, a family of four making a round trip would incur a total cost of \$24.
- At this fare level and assuming that the service is open to all (not just cyclists), a reasonable peak-day ridership figure would be half of total capacity, or 180 one-way trips.
- Ridership patterns for the existing Nifty Fifty Trolley service, which operates a visitor-focused service over a very similar season, indicates that average daily ridership is roughly 75 percent of peak daily ridership. This indicates that average daily ridership on the bicycle ferry service would be 135 one-way trips per day.

Multiplying by 70 days per season, annual ridership would be roughly 9,500.

SUBSIDY REQUIREMENTS

At \$3.00 per trip and the ridership level identified above, roughly \$28,000 in fares would be collected over the course of a season. Subtracting these fares from the annual cost of \$56,800 yields an annual subsidy requirement of \$28,000.

ALTERNATIVE 5: SCHEDULED ROAD CLOSURE

OVERVIEW OF ALTERNATIVE

One proposal that has been advanced to provide a bicycling amenity in the corridor would be to close a portion of SR 89 to general public traffic on a consistent scheduled basis, in order for bicyclists and other non-motorized recreational travelers (in-line skaters, etc.) to use the roadway with little or no interference with traffic.

If implemented, of course, the details of such a closure would require review and discussion among a wide range of groups and agencies, such as Caltrans, the local Sheriff and Fire Departments, State Parks, USFS, landowners, etc. For purposes of this analysis, however, the following operational characteristics have been developed as a means of providing a meaningful amenity to bicyclists, while minimizing other impacts.

- To generate significant benefit among bicyclists, the closure would need to occur on a weekend day. Traffic counts were conducted by LSC Transportation Consultants, Inc. by placing a pneumatic road tube counter across SR-89 at the north end of Emerald Bay (specifically, at the winter snow closure gate). These counts were conducted from Friday, July 5 through Tuesday, July 9th. As this period was part of the long 4th of July weekend, they represent peak tourist conditions, and typical summer weekend traffic levels are expected to be lower. Traffic volumes were highest on Saturday (7,657), and substantially lower on Sunday (4,988). Therefore, it is assumed for this analysis that the closure would occur on Sundays (due to the fact that it would affect less traffic).
- For both bicyclists and motorists to be able to easily remember when the closure is to occur, it would need to occur on a consistent basis. It is assumed for this study that the closure would be scheduled for the first Sunday of each month during the peak tourist season, meaning June through September (i.e., Memorial Day through Labor Day).
- Identifying the length of time that the roadway is closed requires a balancing between the desire to provide a useful program for bicyclists, and the need to minimize impacts to motorists. On one hand, the program to be effective should provide an adequate length of time for a group of bicyclists to make a round-trip through the corridor, as well as to make a stop along the way (such as to visit Vikingsholm). On the other hand, it would be beneficial to avoid impacting any commuter traffic in the early morning hours, and also to provide adequate time during daylight hours for motorists to still visit Emerald Bay on the closure days. This would minimize the impacts of the program on both visiting motorists and on merchants and lodging owners dependent on motorists. On balance, a six-hour closure from 8:00 AM until 2:00 PM would allow commuters to travel through the corridor and allow motorists to visit Emerald Bay, while still providing bicyclists with an enjoyable outing.
- It is probably infeasible for the closure to “trap” motorists camping at either D.L. Bliss State Park on the north or Emerald Bay State Park on the south. Assuming that access to D.L. Bliss could be provided during the closure period via Lester Beach Road on the northern end of the park rather than the normal access roadway, the closure section would extend from the Lester Beach Road on the north to the Eagle Point Campground access road on the south. This is a distance of roughly 5.4 miles. Land uses that would be inaccessible to motorists during this period consist of the Vikingsholm, Eagle Falls, and Inspiration Point vista points/trailheads, as well as the two USFS summer home tracts on the north side of Emerald Bay.
- The following motor vehicles should be allowed to enter the closure section:

- Emergency and public safety vehicles, such as CHP, fire department, sheriff department, search and rescue, and ambulances.
- USFS and State Park vehicles.
- Nifty Fifty Trolley service south of Emerald Bay and TART Trolley service north of Emerald Bay. Together, these services provide the only public transit connection between the North Shore and the South Shore.
- Lessees of the USFS summer homes. A permit system would be required, in which one or two numbered permits are distributed to each lessee, along with a flyer discussing the closure and auto use restrictions.

For these motorists, it is recommended that a lower speed limit (such as 25 mph) should be imposed, excepting emergency (siren on) conditions.

- To effect the closure, the following steps would be required:
 - The state highway at either end of the closure would need to be closed with gates or barricades, and staffed at all times. The staff would be required to ensure that only authorized motorists are allowed to pass, and also to instruct motorists as to when the closure will end and legal parking areas.
 - Signage would need to be put in place at the three major internal parking areas (Vikingsholm, Eagle Falls, and Inspiration Point) to inform motorists that parking after 8 AM on the day of the closure is illegal. Flyers would need to be placed under the windshield of vehicles parked at these locations and elsewhere along the corridor indicating that use of the state highway is illegal until 2 PM. To provide some level of egress for these motorists, law enforcement vehicles could potentially be used to “caravan” general public vehicles out of the area at several times over the closure period.
 - Signage would need to be installed and maintained at locations along SR 89 well in advance of the closure locations, such as in Tahoe City, Homewood, Tahoma and Rubicon Bay to the north, and South Lake Tahoe and Camp Richardson to the south.

OPERATIONAL CONSIDERATIONS

EXISTING TRAFFIC ACTIVITY PATTERNS

As mentioned above, traffic counts were conducted by LSC Transportation Consultants, Inc. at the north end of Emerald Bay Friday, July 5 through Tuesday, July 9. Based on these counts, it was concluded that traffic activity is largely concentrated between approximately 8:00 AM and 7:00 PM. Peak traffic levels occur during the mid-afternoon period. Rather than the distinct morning and

afternoon peaks characteristic of roadways with significant commute traffic, this pattern reflects the large proportion of motorists on SR-89 that are visitors on recreational trips.

Additional information regarding traffic patterns in the area was collected by the TRPA with assistance by LSC as part of a transit study for Emerald Bay and Fallen Leaf Lake, conducted in 1998. As summarized in the Emerald Bay / Fallen Leaf Lake Data Analysis Report (LSC, April 8, 1998), a survey was conducted of motorists parking at both Inspiration Point and Vikingsholm, by placing mail-back postcard surveys under their windshield wipers. A total of 147 surveys were obtained from these areas, that indicated the following:

- 65 percent of respondents were visitors staying overnight in the Tahoe area, while virtually all of the remaining 35 percent were day visitors.
- “Sightseeing” was identified as the trip purpose for 43 percent of all respondents, while 36 percent indicated hiking/biking as their trip purpose.
- There were an average of 3.3 persons per vehicle.
- The average length of stay in the Tahoe Region was identified as 4.6 hours for day visitors, and 2.6 days for overnight visitors. This latter figure, coupled with the high proportion of overnight visitors, indicates that most visitors could plan their stay in the Tahoe Region to avoid a one-day road closure.
- 73 percent of respondents had visited the area previously.
- Of all respondents, 20 percent indicated that they were planning a complete trip around Lake Tahoe on the day they were surveyed. No data was collected on the proportion of other respondents heading through the area versus return the direction in which they arrived.

NON-MOTORIZED USE LEVELS

To our knowledge, there is not an existing instance of a state or U.S. highway that is closed on a consistent scheduled basis for use as a recreational travel corridor. There are examples of highways that are closed for special events (such as the closure in one direction each year of SR 89 for the Lake Tahoe Marathon for four to six hours on one day), as well as examples of new roadway facilities that are opened to bicycle use for a few days prior to opening for use by motorized traffic. Establishment of a scheduled, consistent closure of a state highway, however, would be without precedence. It is therefore difficult to estimate how much use the closed facility would generate, as there are no comparable examples to consider.

The following factors would impact the use levels of the facility:

- Even without the potential for conflict with motorized traffic, the steep grades along the roadway would substantially limit use by families with younger children.
- Usage would undoubtedly be largely a factor of the public's awareness of the closure program.
- A rough comparison can be drawn between usage levels of other Class I bicycle facilities in the Tahoe Region and SR-89 when closed. Daily facility use data in the Region is limited (for instance, no such data is provided in the Lake Tahoe Bicycle and Pedestrian Master Plan.) A survey of TCPUD trails conducted in the summer of 1994, however, provides some useful daily trail use data. As summarized in the TCPUD Bicycle Trail User Survey (LSC, 1994), a twelve-hour count of the three trails entering Tahoe City over a peak summer day indicated that 842 users were observed on the Truckee River Trail, 696 users were observed on the West Shore Trail, and 420 users were observed on the North Shore Trail. These figures included any double-counting of individuals passing the survey points more than once.

Considering these use figures, the grades found on the SR-89 closure section versus the characteristics of the various TCPUD facilities, and the high awareness that closure of SR-89 would undoubtedly generate, a reasonable use estimate of 500 cyclists could be expected over the course of a peak closure day.

POTENTIAL IMPACTS

Impact on Traffic Patterns

The total traffic impacted by the potential closure would be greater than the traffic activity at any one point. Specifically, motorists visiting from both the north and the south that return in the direction from which they came would be impacted, as well as through motorists. It is estimated based upon the survey discussed above, available traffic counts, as well as informal observation, that one-half of the traffic entering the Emerald Bay area from the north returns to the north, while two-thirds of the traffic entering the area from the south returns to the south. Based upon these factors and traffic volumes observed in both the LSC counts as well as Caltrans counts, and adjusting for traffic activity between the closure points and the nearest Caltrans count locations, it is estimated that over a summer Sunday a total of 4,506 motorists make trips that would be impacted by the closure. Of this total, 62 percent would consist of motorists return the direction in which they arrived (both to/from the north and the south), and the other 38 percent would be through motorists.

It is estimated that 2,009 of these total motorists over the day would be impacted in the 8 AM to 2 PM closure period. Of these impacted motorists, an estimated 1,187 are those returning the way they arrived, and the remaining 822 are through motorists.

How these motorists would modify their trip-making in response to the closure is impacted by a number of factors. In general, motorists returning from the direction they arrived can be expected to do one of three things: eliminate their trip entirely, shift to another travel mode (transit, bicycle,

or pedestrian), or shift the time of their trip. Through motorists can be expected to respond by eliminating their trip, changing their trip time or day, or traveling via the East Shore.

The proportions of the two types of motorists that would have the various responses is impacted by a variety of factors:

- A large proportion of total trips in the corridor are “discretionary” trips, rather than non-discretionary trips such as work trips or delivery vehicles. A large proportion therefore have substantial discretion on when they travel, or even if they travel.
- Trips via the East Shore during the summer can take 30 to 60 minutes longer than existing trips on the West Shore, depending upon specific trip origin and destination. There is therefore a substantial “penalty” in deciding to continue to complete a trip via the longer route.
- As discussed above, a majority of motorists stopping at the parking areas in Emerald Bay consist of visitors staying for two or more days. It therefore would be relatively easy for most motorists to eliminate their trip entirely on the day of the closure, and simply schedule their trip to the Tahoe Region to visit Emerald Bay on another day.
- With advanced knowledge, it can be expected that a relatively high proportion of motorists that would otherwise travel the corridor between 8:00 AM and 9:00 AM would simply travel in the hour prior to the 8:00 AM closure. Similarly, motorists that would otherwise travel the corridor between Noon and 2:00 PM would largely plan their day to travel after 2:00 PM. In particular, many motorists wishing to make through trips in the hour prior to the end of the closure would find it faster to simply wait for the closure to lift, rather than to drive the East Shore.
- The proportion of motorists diverting to other modes is expected to be relatively low, due to (1) the challenge associated with walking or bicycling the corridor (with the exception of those camped in the Eagle Point Campground, who could relatively easily substitute a walk trip to Emerald Bay for an auto trip), (2) the very limited capacity of the existing transit services.

Considering all of these factors in total, the proportions identified for the various responses were developed. When multiplied by the total number of motorists in the two types, the total shifts in travel patterns is identified. It is estimated that a total of 1,170 motorists would react to the closure by shifting their travel time, 599 motorists would eliminate their trip entirely (at least on the day of the closure), 214 motorists would divert to the east shore, and the remaining 48 motorists would divert to other travel modes.

In reviewing these figures, the traffic impacts associated with diversion to the East Shore (SR 28 and US 50) can be expected to be relatively minor, as these volumes would be distributed over the closure period and the volumes are small in comparison with the available capacity of the East Shore

roadways. The more problematic traffic impact would occur due to motorists shifting their travel times. While most of these motorists that would otherwise travel during the first hour of the closure could be expected to simply shift their travel time one hour earlier (into a period with relatively low existing traffic volumes), a large proportion of motorists wishing to travel between 9:00 AM and 2:00 PM who respond to the closure by shifting their travel time would shift to the hours just after the end of the closure. Traffic volumes in the 2:00 PM hour can be expected to increase from a non-closure level of roughly 520 vehicles (total in both directions) to approximately 1,170 vehicles. Considering the interaction of parking vehicles, pedestrians, and through volumes, this volume probably exceeds the capacity of the roadway, particularly to the south of Vikingsholm. As a result, extensive traffic queues and delays would occur over the hour or two after the end of the closure.

Impacts on Parking

As evidenced by the vehicle parking observed at the ends of existing Class I facilities in the region (such as along SR 89 at the south end of the Class I trail through Camp Richardson, or at the 64 Acre Parcel at the end of the Truckee River Trail in Tahoe City), many bicyclists elect to drive to the beginning of an attractive bicycle facility. It can be expected that this pattern would also occur with closure of SR 89. Therefore, a substantial amount of vehicle parking could be expected to be generated wherever the closures are located.

This impact can be estimated by factoring the total usage estimate presented above by the following factors:

- Based upon existing population and lodging figures, 60 percent of the use would come from the South Shore, and the remaining 40 percent from the north shore.
- An estimated 50 percent of all cyclists using the closure section would drive to the area, and the remaining 50 percent would cycle or take bikes-on-transit. (In comparison, the TCPUD surveys indicated that 35 percent of TCPUD trail users drove to the trails. As the SR-89 closure area is more remote, the proportion driving would be higher).
- Per the TRPA TRANPLAN model data, the total number of users arriving by car can be divided by an average recreational vehicle occupancy of 3.1 persons per vehicle, to identify the number of vehicles arriving at either end of the closure.
- As the closure period is assumed to be relatively short, it is assumed that all user vehicles are parked at the closure points at the peak time.

Using these factors, it is estimated that up to approximately 60 vehicles would be parked at the south closure, and up to 40 vehicles at the north closure. In reality, parking for these numbers of vehicles is not physically available at either closure location. The closest location that could reasonably accommodate this additional parking demand on the south end would be the existing Sno-Park location off of Cathedral Road, while on the north end the closest location would be shoulder and lot parking along internal park roads in Sugar Pine Point State Park. Barring an extraordinarily aggressive parking enforcement program, in actuality this parking would occur along the SR 89

shoulder and residential streets in the Rubicon Bay area on the north, and along the SR shoulder, Cascade Road shoulder, and USFS facilities on the south.

In addition, vehicles would be parked by motorists simply waiting for the end of the closure period. While there are some segments of roadways approaching both ends of the corridor with sufficient shoulder for vehicles to park out of the travel lane, there are also other segments without sufficient shoulder. It can be expected that motorists waiting for the 2 PM end of the closure would queue in the approaching travel lanes, particularly after 1 PM or so, when waiting for the end of the closure would be quicker than driving around the East Shore of the lake. A reasonable estimate of this pattern, based upon the analysis of traffic response to the closure discussed above, would be 140 vehicles queued in the northbound direction at the south closure, and 170 vehicles queues in the southbound direction at the north closure. At an average of 30 feet per vehicle, this queue would be on the order of 0.8 miles long on the south (northbound), and 1.0 miles long on the north (southbound). This queue would block access to the closure point, for all but emergency vehicles moving in the oncoming lane, as well as access to the various Ring Roads and Bliss State Park on the north and to Cascade Road and Eagle Point Campground on the south.

Impact on Emergency Access

While the ability of emergency and public service vehicles to pass through the closure points would minimize the impact of the closure for most of the closure period, the long queues of cars in the inbound lanes during the last hour or so prior to closure would substantially reduce emergency response. As some general public traffic would still be using the outbound lane adjacent to the inbound queue (generated by inbound drivers deciding to turn around, as well as persons existing the state parks near the closure points), use of the oncoming lane by emergency response vehicles for these long distances could be potentially hazardous. In addition, the traffic congestion for the hour or two after the end of the closure would also slow emergency response.

Impact on Private Land Access to the Corridor

Property owners and USFS leaseholders would be provided access through the closures. However, the long queues of traffic waiting for the closure gates to open would effectively block access for roughly an hour prior to the end of the closure, both for those persons bound to properties within the closure corridor as well as those persons with access within roughly 1 to 1.5 miles of the closure points.

SAFETY CONSIDERATIONS

Given the steep grades of SR-89 through the Emerald Bay corridor, it is possible that a recreation-oriented road closure could result in safety hazards and conflicts between bicyclists and pedestrians. With the road closure in effect and no possibility of conflicts with automobiles, it is likely that many cyclists descending in either direction from the Inspiration Point area would be tempted to “take the lane” and descend at a high rate of speed. Particularly on the long, relatively straight descent between Inspiration Point and Eagle Falls where there is ample sight distance, unchecked downhill bicycle speeds could exceed 40 mph. Heading from Inspiration Point toward the Eagle Point campground entrance, bicycle speeds would not likely be as fast due to the sharp switchbacks and limited sight distance. With pedestrians sharing the roadway lane during closure periods, there is a possibility of conflicts and collisions between high-speed bicyclists and pedestrians. Pedestrians

using the roadway lane, particularly children, may be poor judges of how fast cyclists are descending, and accidentally get in their way.

If the road closure idea were to be pursued, some regulatory solution to this problem would need to be implemented. Pedestrians would need to be advised to walk near the edges of the roadway, and to avoid crossing the roadway at blind curves. Bicyclists would need to be given a maximum speed limit on descents, perhaps in the range of 25 mph, so that they could operate safely with pedestrians. Strict radar enforcement of these speed limits on descents (by Highway Patrol or State Park Rangers) would ensure compliance. Both pedestrians and bicyclists would need to be advised to be alert for other users on the roadway, and to be alert for law enforcement, emergency, landowner, or other vehicles that would be permitted to use the corridor during closure periods.

CALTRANS POLICY ON HIGHWAY CLOSURE

In addition to the above operational considerations, it is important to note that Caltrans does not consider the closure of SR-89 to vehicular use as a viable bikeway alternative. Exceptions for highway closures are limited to accidents, construction, maintenance, or weather-provoked conditions.

REFINEMENT OF CONCEPTUAL ALTERNATIVES

Following completion of the environmental, transportation, and engineering analysis, and presentation of the results to Caltrans staff and the TAC, the Conceptual Bikeway alternative were refined further based on those findings. As part of this refinement process, an Alternative Evaluation Matrix was prepared which presented the relative positive and negative benefits of each Conceptual Alternative. This matrix allowed staff and TAC members to compare and weigh the relative impacts of each alternative. The completed evaluation matrix is shown in **Table 3-3**.

The refined alternatives maps, shown in **Figures 3-13, 3-14, 3-15, and 3-16** on the following pages, reflect modifications made to the conceptual alternatives to avoid significant environmental, engineering, operational, or other impacts. The refined alternatives were used in preparation for selecting the Preferred Alternatives (discussed in chapter 4).

ALTERNATIVE 1: OFF-STREET BIKEWAY

From an engineering perspective, it would be possible to construct a paved bike trail from Spring Creek Road, around Emerald Bay, and north to Meeks Bay. However, such construction would have substantial environmental impacts, the need for major cut/fill, water quality/erosion, potential disturbance of special-status plant and wildlife species, construction in wetland and SEZ areas, and major visual quality impacts. It was concluded by the TAC that this conceptual alignment would result in too many impacts and should not be given further consideration as part of the bikeway study.

North of Emerald Bay, it was concluded that the conceptual alignment along the shoreline should also be removed from consideration, due to the same impacts discussed above. However, north of

Emerald Bay there are areas where an off-street bikeway could be constructed adjacent to the highway right-of-way with fewer environmental and engineering impacts than a shoreline alignment. These include the segment between the top (north) end of the viaduct and the D.L. Bliss State Park entrance, the segment through the Paradise Flat area, and the segment north of Meeks Bay. As part of the alternatives refinement process, these segments were classified into areas where 1) Little or no engineering would be required in order to provide four-foot shoulders; 2) Some engineering would be required; or 3) major engineering would be required. These classifications are shown on the Refined Alternatives maps.

ALTERNATIVE 2: ON-STREET BIKEWAY

Based on the assumption that 4 feet was the desired shoulder width throughout the corridor, and using the SR-89 cross-sections, the entire study corridor was classified into areas where 1) Little or no engineering would be required in order to provide four-foot shoulders; 2) Some engineering would be required; or 3) major engineering would be required. These classifications are shown on the refined alternatives maps. It should be noted that these are general classifications based on typical segment characteristics, intended to show the general location of constrained segments along the corridor. There may be areas within a certain classification that are more or less constrained than indicated. A detailed survey of the entire corridor (as is being conducted as part of the water quality improvement project) will need to be conducted prior to any shoulder improvements.

Based upon a preliminary field review of existing roadway widths, and topographic conditions immediately adjacent to the roadway, it appears that the development of four foot shoulders along SR-89 is possible throughout much of the corridor, with the exception of the switchback areas leading up from Cascade Creek, the razorback ridge, and the segment around Emerald Bay from Inspiration Point to the top of the viaduct. Within these constrained areas, some limited shoulder widening may be possible to increase the width available to cyclists. In some places, it may not be possible to widen the shoulders at all. Final plans for shoulder widening within the SR-89 study area will be determined by Caltrans as part of their water quality improvement project for the corridor.

ALTERNATIVE 3: TRANSIT/SHUTTLE BUS

A dedicated bike shuttle service would effectively “compete” with the existing summer transit services along the same corridor. A better option would be to work with the North and South Shore transit agencies to ensure that their existing services can carry bicycles and that their services provide convenient connections. The availability of this effective shuttle service could then be included in regional bicycling information guides, which could both help to improve overall bicycling conditions as well as ridership on these existing services.

ALTERNATIVE 4: WATER FERRY

A bicycle ferry could provide a means for cyclists to avoid the most challenging terrain of the corridor, and could serve as a unique recreational experience in itself. Major issues related to a bicycle ferry operation include obtaining permits for docking locations, and start-up and operational costs. As with other aspects of public transportation services, it is reasonably easy to obtain capital funding for new projects, but very difficult to generate new operating funding. There are several

state and federal transportation funding sources that could potentially be tapped to provide financial support of this service, such as the state's Transportation Development Act funds or the Federal Transit Administration's Section 5311 rural public transportation funds. However, all funds generated by these programs currently available to the Tahoe Region are effectively already being used to fund existing transit programs, such as the transit programs in Placer County and South Lake Tahoe. There appears to be no existing mechanism by which Caltrans highway or bicycle facility funds could be used to fund the ongoing operating costs of a ferry service. As is the case for many other local transportation programs, funding these ongoing operating costs would likely be the biggest obstacle to overcome in implementing this alternative.

ALTERNATIVE 5: SCHEDULED ROAD CLOSURE

The scheduled closure of SR-89 through Emerald Bay would undoubtedly create a very attractive amenity for bicyclists and other non-motorized users. However, it would result in significant traffic and parking problems, as discussed above, particularly in the two to three hour period at the end of the closure period. As noted earlier, the details of a scheduled closure would require review and discussion among a wide range of groups and agencies, including Caltrans, the local Sheriff and Fire Departments, State Parks, USFS, and local landowners, and ultimate approval of a scheduled road closure would need to be granted by Caltrans. At this time, Caltrans has indicated that they do not support scheduled closure of SR-89 as discussed in this alternative.

CONCEPTUAL ALTERNATIVES CONSIDERED BUT REJECTED

As part of the Technical Advisory Committee process, a number of preliminary conceptual alternatives were suggested and discussed, but ultimately rejected for detailed evaluation as part of this study. Reasons for rejecting preliminary conceptual alternatives included: not meeting the overall goals of the project; not functional for cyclists; clear significant environmental impacts, or lack of support from a majority of TAC stakeholders.

Preliminary conceptual alternatives considered but rejected include:

Class II Bike Lanes. As discussed under Alternative 2 above, bike lanes on SR-89 were rejected in favor of widened shoulders.

Colored Asphalt Shoulder Areas. Colored asphalt treatment was suggested as a means of better delineating the bicycle/shoulder area from the travel lane. This alternative was rejected for similar reasons to the bike lane issues discussed under Alternative 2.

Elimination of parking at Vikingsholm and mandatory shuttle access into Emerald Bay State Park. This alternative would involve a substantial change in the way the Emerald Bay recreational areas are accessed by short-term visitors. While many on the TAC agreed that such access changes to limit vehicular traffic into the Emerald Bay area would have positive impacts related to bicycle access (and overall environmental quality) and may be desirable in the future, such a change would require a major policy shift by State Parks and new facility development, including a new shuttle system, development of staging/parking areas outside of Emerald Bay, and provisions to ensure that

through-traffic on SR-89 is not disrupted. It was decided by the TAC that this would be a longer-term change that would need to be led in large part by California State Parks as part of a revision to their Emerald Bay State Park master planning document.

Unpaved Bike Trails. While unpaved bike trails through the area were suggested as a means of reducing impervious surface coverage, the Lahontan RWQCB noted that unpaved trails are still considered to be increased coverage, and it was concluded that unpaved trails would not provide an appropriate surface for road cyclists.

Ferry between Emerald Point and Eagle Point. A ferry connector across the mouth of Emerald Bay was suggested as one means of providing a link between the Cascade Creek Section and DL Bliss State Park, bypassing the most crowded sections of Emerald Bay State Park. Because this option would require a Class I bike path extending to both Emerald Point and Eagle Point, which was determined to be undesirable for environmental and engineering reasons, this conceptual alternative was dropped from consideration.